Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of the claims in the application.

In the Claims

1. (Previously Presented) A medical device, comprising: a biocompatible body, and an attachable marker band secured circumferentially to an outer surface of the polymer biocompatible body, the marker including a fluoroscopic imaging enhancement material and an MRI enhancement material, wherein the fluoroscopic imaging enhancement material and MRI enhancement material are in separate concentric and noncircumferentially contiguous layers.

2. (Original) The device of claim 1 wherein the biocompatible body comprises a polymer.

3. (Original) The device of claim 1, wherein the biocompatible body comprises a material selected from the group consisting of metal, ceramic, autogeneous materials, biologically derived materials and combinations thereof.

4. (Original) The device of claim 1 wherein the marker is secured by friction.

5. (Original) The device of claim 1 wherein the marker is secured by adhesive.

6. (Original) The device of claim 1 wherein the marker is secured by shrink material.

7. (Original) The device of claim 1 wherein the marker includes multiple layers.

8. (Currently Amended) The device of claim 7 wherein the layers have a thickness of about 0.005 inch or less.

9. (Original) The device of claim 1 wherein the fluoroscopic imaging enhancement material and MRI enhancement layer are provided in separate layers.

10. (Original) The device of claim 1 wherein the marker includes three or more layers.

11. (Original) The device of claim 1 wherein the marker includes 4 to 20 layers.

12. (Original) The device of claim 1 wherein the marker includes a drug layer.

13. (Original) The device of claim 1 wherein the marker has a first layer including a fluoroscopic imaging enhancement material and a second layer having an MRI enhancement material, and a third layer.

14. (Original) The device of claim 13 wherein the third layer is in contact with said biocompatible body.

15. (Original) The device of claim 13 wherein said third layer is between the first and second layers.

16. (Original) The device of claim 13 wherein the third layer defines an exterior surface ofthe marker.

17. (Original) The device of claim 1 wherein the fluoroscopic imaging enhancement material and the MRI enhancement material are in separate layers and the MRI imaging enhancement material has a radiopacity of about 0.9 or less than the radiopacity of stainless steel.

18. (Original) The device of claim 17 wherein the MRI enhancement material has an atomic number of 40 or less.

19. (Original) The device of claim 17 including a layer including MRI enhancement material, the layer having a thickness of about 1 micron or less.

20. (Original) The device of claim 1 wherein the MRI enhancement material is present at 25% or less by weight ofthe fluoroscopic imaging enhancement material.

21. (Original) The device of claim 1 wherein the marker has a radiopacity of about 1.1 times or more stainless steel.

22. (Original) The device of claim 1 wherein the marker has a MRI visibility about equal or greater than about 280 mg/ml gadodiamine in 5000 ml blood.

23. (Original) The device of claim 1 wherein the fluoroscopic imaging material has a density of about 9.9 g/cm.sup.3 or more.

24. (Currently Amended) The device of claim 1 wherein the fluoroscopic material is selected from the list consisting of gold, platinum, tungsten, tantalum, rhenium, bismuth, silver, iridium and mixtures, compounds, complexes and mixtures thereof.

25. (Original) The device of claim 1 wherein the MRI material is ferromagnetic, paramagnetic or superparamagnetic.

26. (Original) The device of claim 1 wherein the MRI material has a magnetic susceptibility of about 500.times.10.sup.-6 Emu or greater.

27. (Currently Amended) The device of claim 1 wherein the MRI material is selected from the list consisting of nickel, iron, magnesium, cobalt and alloys, oxides and mixtures thereof.

28. (Currently Amended) The device of claim 1 wherein the MRI material is selected from the list consisting of gadodiamine, dysprosium, terbium and alloys, oxides and mixtures thereof.

29. (Original) The device of claim 1 wherein the marker extends over at least 50% ofthe circumference ofthe body and the fluoroscopic imaging material and MRI material are arranged concentrically with respect to one another.

30. (Original) The device of claim 29 wherein the marker is non-circumferentially conducting.

31. (Original) The device of claim 30 wherein the marker extends over 70 to 85% of the circumference ofthe body.

32. (Original) The device of claim 1 wherein the biocompatible body is on a catheter.

33. (Original) The device of claim 32 wherein the catheter is formed entirely of polymer at the location where the marker is secured.

34. (Original) The device of claim 32 wherein the catheter is a balloon catheter.

35. (Currently Amended) The device of claim 34 including multiple ~~markers~~ marker bands secured to the biocompatible body at locations indicative of the location of a balloon carried by the balloon catheter.

36. (Original) The device of claim 1 wherein the biocompatible body is a guidewire.

37. (Original) The device of claim 36 wherein the guidewire is composed entirely of polymer at the location the marker is secured to the body.

38. (Original) The device of claim 1 wherein the biocompatible body is a stent.

39. (Previously Presented) A marking system for use with a medical device to mark a region thereof, comprising:

a marker band that is circumferentially attachable to an outer surface of the medical device, the marker including a fluoroscopic imaging enhancement material and an MRI enhancement material;

wherein the fluoroscopic imaging enhancement material is provided in a first layer and the MRI enhancement material is provided in a second layer,

wherein the first and second layers are concentric with each other and are bonded, and wherein each of the first and second layers is non-circumferentially contiguous.

40. (Previously Presented) The marking system of claim 39, wherein at least one of the fluoroscopic imaging enhancement material and MRI enhancement material is disposed within a matrix.

41. (Previously Presented) The marking system of claim 39, wherein the fluoroscopic imaging enhancement material and the MRI enhancement material are disposed within a matrix.

42. (Previously Presented) The marking system of claim 39, wherein the fluoroscopic imaging enhancement material comprises a pure metal.

43. (Previously Presented) The marking system of claim 39, wherein the MRI enhancement material is disposed within the matrix.

44. (Previously Presented) The marking system of claim 43, wherein the matrix is a polymer.

45. (Previously Presented) The marking system of claim 43, wherein the matrix is a ceramic.

46. (Previously Presented) The marking system of claim 39, wherein the marking system marker band is noncircumferentially conducting.

47. (Previously Presented) The marking system of claim 39, wherein the device is selected from the group consisting of catheters, guidewires, medical coils, pacer leads, and vascular stents.

48. (Currently Amended) The marking system of claim 39 wherein the marker band has three or more concentric layers, and wherein at least one of the three or more layers comprises the fluoroscopic imaging enhancement material or the MRI enhancement material.

49. (Previously Presented) The marking system of claim 48, wherein the body marker comprises 4 to 20 layers.

50. (Original) The marking system of claim 48, wherein each of the layers has a thickness between about 0.00005 inches and about 0.005 inches.

51. (Original) The marking system of claim 48, wherein one of the layers comprises a bonding layer.

52. (Original) The marking system of claim 48, wherein one of the layers comprises a drug-delivery layer.

53. (Currently Amended) The marking system of claim 48 wherein the marker band includes an inward-facing projection.

54. (Previously Presented) A method of attaching a marker to a medical device, the method comprising:

positioning at least one marker band at a location along the medical device,

wherein the at least one marker includes a first layer comprising a fluoroscopic imaging enhancement material and a second layer comprising a MRI enhancing material,

wherein the first and second layers are concentric and

wherein each layer is non-circumferentially contiguous; and

circumferentially securing the marker at the location.

55. (Original) The method of claim 54, wherein securing comprises crimping the marker onto the medical device.

56. (Original) The method of claim 54, wherein securing comprises adhering the marker onto the medical device.

57. (Original) The method of claim 56, wherein adhering comprises applying a glue.

58. (Original) The method of claim 56, wherein adhering comprises applying a heat shrink material.

59. (Original) The method of claim 54 wherein securing includes: positioning a first layer comprising an imaging enhancement material on the medical device; and positioning a second layer comprising an imaging enhancing material on the medical device, such that the first and second layers are concentric.

60. (Previously Presented) The method of claim 54 wherein the medical device, at the location where the marker is secured, has a radiopacity less than stainless steel.

61. (Previously Presented) The method of claim 59 wherein the medical device, at the location where the marker is secured, is composed of substantially nonferromagnetic, paramagnetic or superparamagnetic material.

62. (Previously Presented) The medical device according to claim 1 wherein the marker is C-shaped.

63. (Previously Presented) The marking system according to claim 39 wherein the marker is C-shaped.

64. (Currently Amended) The method according to claim 54 wherein the marker band is C-shaped.